CLAIMS

1. A plasmid DNA comprising a promoter and a DNA encoding an amino acid sequence comprising a transmembrane region and a functional region of an Fas antigen, in a region downstream of a responsive element of Gal4 protein.

2. The plasmid DNA according to claim 1, wherein the amino acid sequence comprising the transmembrane region and the functional region of the Fas antigen is an amino acid sequence of the 136th to 305th positions of mouse Fas antigen or an amino acid sequence of the 145th to 319th positions of human Fas antigen.

3. The plasmid DNA according to claim 1 or 2, wherein an amino acid sequence comprising a signal peptide region of the Fas antigen is linked to the N–terminal of the amino acid sequence comprising the transmembrane region and the functional region of the Fas antigen.

4. The plasmid DNA according to claim 3, wherein the amino acid sequence comprising the signal peptide region of the Fas antigen is an amino acid sequence of the –21st to 14th positions of mouse Fas antigen or an amino acid sequence of the –16th to 23rd positions of human Fas antigen.

5. A transformant transformed with both of the plasmid DNA of claim 1 and a DNA encoding an effector protein.

6. The transformant according to claim 5, wherein the effector protein is a fusion protein in which an amino acid sequence comprising a ligand binding region of a nuclear receptor is linked to the C–terminal of an amino acid sequence comprising a DNA binding region of Gal4 protein.

7. The transformant according to claim 6, wherein the nuclear receptor is a steroid receptor.

8. The transformant according to claim 6, wherein the nuclear receptor is a PPAR α receptor.

9. The transformant according to claim 8, wherein the amino acid sequence comprising the ligand binding region of the nuclear receptor is an amino acid sequence of the 167th to 468th positions of human PPAR α receptor or an amino acid sequence of the 167th to 468th positions of mouse PPAR α receptor.

10. The transformant according to claim 6, wherein the nuclear receptor is a PPAR δ receptor.

11. The transformant according to claim 10, wherein the amino acid sequence comprising the ligand binding region of the nuclear receptor is an amino acid sequence of the 139th to 441st positions of human PPAR δ receptor or an amino acid sequence of the 138th to 440th positions of mouse PPAR δ receptor.

12. The transformant according to claim 6, wherein the nuclear receptor is a PPAR γ receptor.

13. The transformant according to claim 12, wherein the amino acid sequence comprising the ligand binding region of the nuclear receptor is an amino acid sequence of the 176th to 478th positions of human PPAR γ1 receptor, an amino acid sequence of the 174th to 475th positions of mouse PPAR γ1 receptor, an amino acid sequence of the 204th to 506th positions of human PPAR γ2 receptor, or an amino acid sequence of the 204th to 505th positions of mouse PPAR γ2 receptor.

14. The transformant according to claim 6, wherein the nuclear receptor is a retinoid X receptor.

15. The transformant according to claim 14, wherein the amino acid sequence comprising the ligand binding region of the nuclear receptor is an amino acid sequence of the 225th to 462nd positions of human retinoid X receptor α, an amino acid sequence of the 297th to 526th positions of human retinoid X receptor β, an amino acid sequence of the 230 to 467th positions of mouse retinoid X receptor α, an amino acid sequence of the 171st to 410 positions of mouse retinoid X receptor β, or an amino acid sequence of the 229th to 463rd positions of mouse retinoid X receptor γ.

16. The transformant according to claim 6, wherein the nuclear receptor is a retinoic acid receptor.

17. The transformant according to claim 16, wherein the amino acid sequence comprising the ligand binding region of the nuclear receptor is an amino acid sequence of the 198th to 462nd positions of human retinoic acid receptor α, an amino acid sequence of the 191st to 448th positions of human retinoic acid receptor β, an amino acid sequence of the 200th to 454th positions of human retinoic acid receptor γ, an amino acid sequence of the 198th to 462nd positions of mouse retinoic acid receptor α, an amino acid sequence of the 190th to 448th positions of the mouse retinoic acid receptor β, or an amino acid sequence of the 200th to 458th positions of mouse retinoic acid receptor γ.

18. The transformant according to claim 6, wherein the nuclear receptor is a vitamin $D_3$ receptor.

19. The transformant according to claim 6, wherein the nuclear receptor is a thyroid hormone receptor.

20. A therapeutic agent for a cancer or an autoimmune disease, comprising the plasmid DNA of any one of claims 1 to 4 and a DNA encoding an effector protein.

21. A therapeutic agent for a cancer or an autoimmune disease, comprising a DNA for transforming the transformant of any one of claims 5 to 19 as an active ingredient.

22. A method for screening an agonist or an antagonist for a intracellular receptor, comprising using the transformant of any one of claims 5 to 19.

23. A method for screening an agonist or an antagonist for a PPAR $\alpha$ receptor, a PPAR $\gamma$ receptor or a PPAR $\delta$ receptor, wherein the transformant of any one of claims 5 to 19 is mouse fibroblast L929 or human cancer cell HeLa.